

Complies with the machinery directives 2006/42/EC

**4** better lifting



**NB: Please ensure that the safety instructions have been fully read and understood before initial use of the VLBS weld-on lifting point. Failure to do so may result in serious injuries and/or material damage and eliminates manufacturers warranty.**

## User Instructions - Part 1

### Safety instructions

This safety instruction/declaration of the manufacturer must be kept on file for the lifetime of the product.

**ATTENTION: Please inspect all lifting points prior to use. Damage, incorrect assembly or improper use may result in serious injuries and/or material damage.**

### EC-Declaration of the manufacturer

According to the Machinery Directive 2006/42/EC, annex II B and amendments.

We hereby declare that the design and construction of the equipment detailed within this document, adheres to the appropriate level of health and safety of the corresponding EC regulation.

Any un-authorized modification and/or any incorrect use of the equipment not adhered to within these user instructions waives this declaration invalid.

The equipment must be regularly tested and inspected as per BGR 500. Failure to carry out the recommended maintenance and testing waives this declaration invalid.

### Designation of the equipment:

Type: **VLBS weld-on lifting point**

Manufacturer's mark:

Drawings (iges, dxf and step), product information and other support material can be downloaded from [www.rud.com.au](http://www.rud.com.au).

**EC-Declaration of conformity**

According to the EC-Machinery Directive 2006/42/EC, annex II A and amendments

Manufacturer: **RUD Ketten  
Rieger & Dietz GmbH u. Co. KG  
Friedensinsel  
73432 Aalen**

We hereby declare that the equipment sold by us because of its design and construction, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC-Machinery Directive 2006/42/EC as well as to the below mentioned harmonized and national norms as well as technical specifications. In case of any modification of the equipment, not being agreed upon with us, this declaration becomes invalid.

Product name: Load ring VLBS

The following harmonized norms were applied:

EN 12100-1	EN 12100-2
EN 14121-1	EN 1677-1
_____	_____
_____	_____

The following national norms and technical specifications were applied:

BGR 500, KAP2.8	_____
_____	_____
_____	_____

Authorized person for the configuration of the declaration documents:  
Reinhard Smetz, RUD Ketten, 73432 Aalen

Aalen, 29.12.2009      Dr. Ing. Rolf Sinz (Produktionsleiter)

Name, function and signature of the responsible person

## User Instructions - Part 2

1. Reference should be made to relevant standards and other statutory regulations. Inspections should be carried out by competent persons only.

2. Before installing and at every use, visually inspect RUD lifting points, with particular attention to any evidence of weld cracks, corrosion, wear, deformations, etc.

3. The material construction to which the lifting point will be attached should be of adequate strength to withstand forces during lifting without deformation. The contact areas must be free from impurities, oil, colour, etc. Preheat the structure according to AS 1554 if required.

**The material of the forged welding block is S355J2+N, St52-3, B.S. 4360.50 D or AISI 1019 (≈AS3678 GR350).**

4. The lifting points must be positioned on the load in such a way that movement is avoided during lifting.

a.) For single leg lifts, the lifting point should be vertically above the centre of gravity of the load.

b.) For two leg lifts, the lifting points must be equidistant to/above the centre of gravity of the load.

c.) For three and four leg lifts, the lifting points should be arranged symmetrically around the centre of gravity in the same plane.

5. Load Symmetry: The working load limits of individual RUD lifting points are calculated using the following formula and are based on symmetrical loading:

$$W_{LL} = \frac{G}{n \times \cos \beta}$$

WLL = required of lifting point/individual leg (kg)  
 G = load weight (kg)  
 n = number of load bearing legs  
 β = angle of inclination of the individual leg

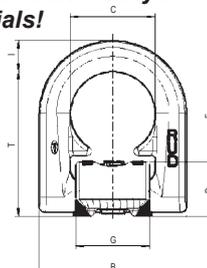
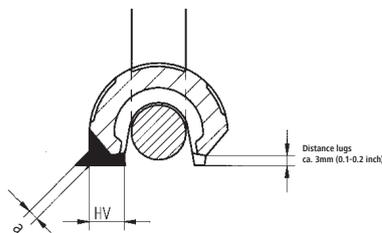
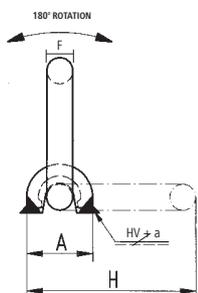
**NOTE: For WLL Calculations**

- β angle is taken from the vertical plane.
- Included angle is the angle between the sling legs.



6. Safety: When lifting points are used in a multileg assembly, care should be taken to calculate the WLL (Working Load Limit) due to the deration caused by forces acting in multiple directions. The reduction in WLL (Working Load Limit) for multileg assemblies should be checked with relevant Standards e.g. AS 3775-2004 - Chain Slings-Gr t (8)

The lifting points must be mounted in such a way that they may easily be accessed for inspection and assembly/disassembly of the sling.



7. The lifting point is suitable for use within temperature range -20°C up to 400°C. For use within the following temperature ranges the WLL must be reduced by the following factors:

**200°C up to 300°C by -10% / 300°C up to 400°C by -25%**

8. All fittings connected to the VLBS should be free moving. When connecting and disconnecting the lifting means (sling chain) pinches and impacts should be avoided. Damage of the lifting means caused by sharp edges should also be avoided.

9. The complete design can be stress relieved once in the unloaded condition to <600°C (1100°F) without reduction of WLL.

10. At outdoor sites or in case of special danger of corrosion, the welds should only be designed as continuous, fillet welds. The HV weld at the VLBS guarantees a connection via the whole cross section of the material. This corresponds to a closed weld showing no signs of corrosion.

11. The distance lugs assist in achieving the correct root weld (approx. 3 mm = 0.1 inch). They should not be removed.

12. RUD-Lifting points must not be used under chemical influences such as acids, alkaline solutions and vapours e.g. in pickling baths or hot dip galvanising plants. If this cannot be avoided, please contact the manufacturer indicating the concentration, period of penetration and temperature of use.

13. If the lifting points are used **exclusively** for lashing the value of the working load limit can be doubled. LC = 2 x WLL

14. After welding, an annual inspection or sooner if conditions dictate should be undertaken by a competent person. Also inspect after damage and special occurrences.

**Inspection criteria regarding paragraphs 2 and 13:**

- The lifting point should be complete.
- The WLL and manufacturers stamp should be clearly visible.
- Deformation of the component parts (body, load ring etc.).
- Mechanical damage, (eg. notches) particularly in high stress areas.
- Wear should be no more than 10% of cross sectional diameter.
- Evidence of corrosion.
- Evidence of cracks.
- Cracks or other damages to the welding.

**Any non-adherence to this advice may result in damages of persons and/or materials!**

Type	WLL (t)	A	B	C	D	E	F	G	H	I	T	Weld	Weight (kg)	Ref. No. captive complete	Ref. No. without spring
VLBS 1.5	1.5	32	66	38	25	40	13.5	33	87	14	65	HV 5 + 3	0.35	7993035	7993115
VLBS 2.5	2.5	36	77	45	27	48	13.5	40	97	16	75	HV 7 + 3	0.5	7948830	7995346
VLBS 4	4	42	87	51	32	52	16.5	46	112	18	84	HV 8 + 3	0.8	7993036	7993116
VLBS 6.7	6.7	61	115	67	44	73	22.5	60	157	24	117	HV 12 + 4	1.9	7993037	7993117
VLBS 10	10	75	129	67	55	71	26.5	60	173	26.5	126	HV 16 + 4	2.9	7993040	7993118
VLBS 16	16	95	190	100	69	105	26	90	243	40	174	HV 25 + 6	6.8	-	7993041

Table 1

## User Instructions - Part 3

WORKING LOAD LIMITS (G - in tonnes)				
PRODUCT DESCRIPTION	Single Leg	2, 3 or 4 Legs		
				
		Maximum Included Angle		
VLBS - 1.5	1.5	2.6	2.1	1.5
VLBS - 2.5	2.5	4.3	3.5	2.5
VLBS - 4	4.0	6.9	5.6	4.0
VLBS - 6.7	6.7	11.6	9.4	6.7
VLBS - 10	10.0	17.3	14.1	10.0
VLBS - 16	16.0	27.7	22.6	16.0

Table 2

WELD SIZE (per welding block)		
	Size	Approximate Volume
VLBS 1.5t	HV 5 + a 3	1.2 cm <sup>3</sup>
VLBS 2.5t	HV 7 + a 3	2.6 cm <sup>3</sup>
VLBS 4t	HV 8 + a 3	3.2 cm <sup>3</sup>
VLBS 6.7t	HV 12 + a 4	8.7 cm <sup>3</sup>
VLBS 10t	HV 16 + a 4	15.5 cm <sup>3</sup>
VLBS 16t	HV 25 + a 6	56 cm <sup>3</sup>

Note: Dim (a) refers to throat size

Table 3

WELDING PROCESS	
MILD STEEL / LOW ALLOYED STEEL	
<b>MIG</b> GAS SHIELDED WIRE WELDING	AWS A5.18 eg: WIA - Austmig ES6 or Hobart XL 525) or equivalent. (Flux Cored for material >24mm).
<b>MMA</b> MANUAL ELECTRIC WELDING	AWS A5.5 : E8018-G. AWS A5.1 : E7018. eg: WIA - Austarc 18TC or Weldwell PH77 or equivalent.
<b>NB. Please refer to the consumables manufacturer for user instructions and further information.</b>	

Table 4

TYPICAL GMAW SETTINGS (welding VLBS to AS3678 GR350)											
WELD DETAILS		POWER SUPPLY		FLUX GAS		WELDING CONSUMABLE		ELEC.	WELDING PARAMETERS		
RUN	TYPE/POSITION	TYPE	POL	TYPE	QTY	TYPE/NAME	SIZE	ESO	AMP	VOLT	TRAV
ALL	SINGLE BEVEL PARTIAL PEN. BUTT. FLAT OR HOR. (1G/2G)	D.C.	+VE	AS.SG - AC/18 SUPAGAS SUPASHIELD 18	16 - 18 L/Min	ES6-GC/ M-503AH AWS.ER70S-6 "CIGWELD" AUTOCRAFT LWI-6	1.2 mm	12 - 14 mm	240 - 260	25 - 27	LEADING ARC

Table 5

## Welding Sequence

*The welding should only be carried out by an authorised welder, according to AS1554 or EN287 or relevant AWS Standards.*



- 1 Prepare surface and ensure all contact areas are clean. Check preparation and welding consumables for conformance.
- 2 Carefully clean the root run before carrying out subsequent runs.
- 3 Apply fillet weld (see above table 3). The welding process must not be interrupted for such a time that the welding blocks lose the welding temperature.

**Attention: Do not weld at the pink powder coated, heat treated load ring.**